

REMARKS

Summary Of Office Action

Claims 1-23 are pending in this application.

The Examiner allowed claims 13-16.

Claims 1, 4, 9-12, 17-19, and 22 were rejected under 35 U.S.C. §103(a) as being unpatentable over Wang et al. U.S. Patent No. 5,663,665 (hereinafter "Wang") in view of Heo et al. U.S. Patent No. 6,621,315 (hereinafter "Heo"). Claim 23 was rejected under 35 U.S.C. §103(a) as being obvious from Wang and Heo in view of Lin U.S. Patent No. 6,812,753 (hereinafter "Lin"). Claims 2, 3, 5-8, 20, and 21 were rejected under 35 U.S.C. §103(a) as being obvious from Wang and Heo in view of Kwak U.S. Patent No. 6,768,361 (hereinafter "Kwak").

Summary Of Applicant's Reply

Applicant appreciates the allowance of claims 13-16.

Applicant has proposed amending claims 17, 20, 22, and 23 to more clearly define the invention. No new matter has been added and the amendments are fully justified by the original specification.

Reconsideration of this application in view of the amendments and following remarks is respectfully requested.

The Rejection Of Independent Claim 1 Under 35 U.S.C. § 103(a)

Claim 1 was rejected under 35 U.S.C. §103(a) as being unpatentable over Wang in view of Heo.

This rejection is respectfully traversed.

Independent claim 1 is directed towards a circuit for receiving a reference clock signal and outputting clock signals having different phases including at least one delay unit that provides at least three stages of increasingly finer phase adjustment.

The Examiner concedes that Wang does not disclose or suggest at least one delay unit that provides at least three stages of increasingly finer variable phase adjustment, as required by applicant's independent claim 1.

In response to this deficiency in Wang, the Examiner suggests combining Wang with Heo.

Applicant respectfully submits that Heo also does not disclose or suggest this element of applicant's independent claim 1.

Heo refers to a delay locked loop circuit having an adjustable locking resolution with a delay line made up of a plurality of serially connected unit delay circuits. The amount of delay provided by the delay line depends on the number of unit delay circuits effectively enabled by control signals S1 through SN (Heo, col. 4, lines 7-14). The amount of delay provided by the delay line is also adjusted by the unit delay time adjustment circuit that varies the delay time of all of the unit delay circuits in the delay line in response to control signals CL3 and CL4 (Id., lines 46-50 and col. 5, lines 29-31). For example, when control signals CL3 and CL4 are low, the delay of all of the unit delay circuits is minimized and adjusting the number of effectively enabled unit delay circuits provides finer adjustment of the delay line. When control signal CL3 or CL4 is high, the delay of all of the unit delay circuits is increased and adjusting the number of effectively enabled unit delay circuits provides coarser adjustment of the delay line (Id., col. 5, line 50 through col. 6, line 22).

Applicant respectfully submits that all of the unit delay circuits of Heo provide the same amount of delay. Thus, while the delay of the unit delay circuits can be collectively adjusted, all of the unit delay circuits provides the same amount of phase adjustment to the delay line. In contrast, applicant's independent claim 1 requires at least three stages

that provide increasingly finer variable phase adjustment. Accordingly, Heo does not disclose or suggest this element of applicant's independent claim 1.

Accordingly, neither Wang nor Heo discloses or suggests all of the elements of applicant's independent claim 1. Further, the combination of features to which these references cumulatively contribute also falls short of applicant's claimed invention.

For at least this reason, applicant respectfully requests that the rejections of independent claim 1 under 35 U.S.C. §103(a) be withdrawn.

The Rejection Of Independent
Claims 17 and 22 Under 35 U.S.C. § 103(a)

Independent claims 17 and 22 were rejected under 35 U.S.C. §103(a) as being unpatentable over Wang in view of Heo.

This rejection is respectfully traversed.

Applicant has proposed amending independent claims 17 and 22 to include at least three stages of increasingly finer phase adjustment.

Accordingly, for at least the reason discussed above with respect to independent claim 1, amended independent claims 17 and 22 should also be allowable. Applicant respectfully requests that the rejections of amended independent claims 17 and 22 under 35 U.S.C. §103(a) be withdrawn.

The Rejection Of Independent Claim 20 Under 35 U.S.C. § 103(a)

Independent claim 20 was rejected under 35 U.S.C. §103(a) as being unpatentable over Wang and Heo in view of Kwak.

This rejection is respectfully traversed.

Applicant has proposed amending independent claim 20 to include steps providing three increasingly finer stages of clock signal phase shift adjustment.

For at least the reason discussed above with respect to independent claim 1, neither Wang nor Heo discloses or suggests providing three increasingly finer stages of clock signal phase shift adjustment as required by applicant's amended independent claim 20.

Kwak also does not show this feature of applicant's amended independent claim 20. Thus, the combination of the features Wang, Heo, and Kwak also falls short of applicant's claimed invention.

Accordingly, Applicant respectfully requests that the rejections of amended independent claim 20 under 35 U.S.C. §103(a) be withdrawn.

The Rejection Of Independent Claim 23 Under 35 U.S.C. § 103(a)

Independent claim 23 was rejected under 35 U.S.C. §103(a) as being unpatentable over Wang and Heo in view of Lin.

This rejection is respectfully traversed.

Applicant has proposed amending independent claim 23 to include at least three stages of increasingly finer phase adjustment.

For at least the reason discussed above with respect to independent claim 1, neither Wang nor Heo discloses or suggests at least three stages of increasingly finer phase adjustment as required by applicant's amended independent claim 23.

Lin also does not show this feature of applicant's amended independent claim 23. Thus, the combination of the features Wang, Heo, and Lin also falls short of applicant's claimed invention.

Accordingly, applicant respectfully requests that the rejections of amended independent claim 23 under 35 U.S.C. §103(a) be withdrawn.

The Rejections of Dependent Claims Under 35 U.S.C. § 103(a)

Dependent claims 2-12, 18, 19, and 21 were rejected under 35 U.S.C. §103(a) as being obvious from the combination of either (1) Wang and Heo; (2) Wang, Heo, and Kwak; or (3) Wang, Heo, and Lin. These rejections are respectfully traversed.

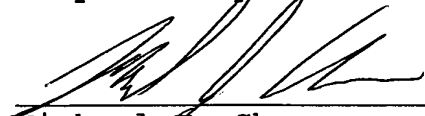
For at least the reasons discussed above with respect to the independent claims, the dependent claims are also not rendered obvious from any of the above combinations of cited references (i.e., dependent claims are patentable if their independent claim is patentable).

Accordingly, applicant respectfully requests that the rejections of dependent claims 2-12, 18, 19, and 21 under 35 U.S.C. § 103(a) be withdrawn.

Conclusion

The foregoing demonstrates that claims 1-23 are patentable. This application is therefore in condition for allowance. Reconsideration and allowance are accordingly respectfully requested.

Respectfully submitted,



Michael J. Chasan
Registration No. 54,026
Agent for Applicant
FISH & NEAVE IP Group
ROPES & GRAY LLP
Customer No. 1473
1251 Avenue of the Americas
New York, New York 10020-1104
(212) 596-9000